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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,162	02/13/2004	Matthias Slodowski	016790-0489	5100
22428	7590	06/19/2006	EXAMINER	
FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			STOCK JR, GORDON J	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 06/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/777,162

Applicant(s)

SLODOWSKI, MATTHIAS

Examiner

Gordon J. Stock

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-13 and 15-18 is/are rejected.
- 7) ☒ Claim(s) 4 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>20040213</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

1. The Drawings filed on February 13, 2004 have been entered into the record.

### *Priority*

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Information Disclosure Statement*

3. The information disclosure statement (IDS) submitted on February 13, 2004 has been considered by the examiner.

### *Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1-2, 5, 6, 9** rejected under 35 U.S.C. 102(b) as being anticipated by **Birkner et al. (2002/0051698)**.

As for **claim 1**, Birkner in a substrate conveying module discloses the following: at least one cassette element (Fig. 7: 2a-2d) with a transport mechanism provided between the cassette element for the wafers and the two workstations (Fig. 7: 1a, 1b); wherein, the two workstations (Fig. 7: 3) may be a thin-layer micrometrology system and a thin-layer macrometrology system (paragraph 0005).

As for **claim 2**, Birkner discloses everything as above (see **claim 1**). In addition, he discloses one workstation being enclosed by a housing defining a basal area (Fig. 9: basal area of region 3).

As for **claim 5**, Birkner discloses everything as above (see **claim 1**). In addition, he discloses a microphotometer, microscope with electronic camera (paragraph 0005).

As for **claim 6**, Birkner discloses everything as above (see **claim 1**). In addition, he discloses a macrophotometer, an electronic camera (paragraph 0005).

As for **claim 9**, Birkner discloses everything as above (see **claim 1**). In addition, he discloses wafers (paragraphs 0002-0003).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 3 and 7** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Birkner et al. (2002/0051698)** in view of **Birkner et al. (2002/0095999)**.

As for **claim 3**, Birkner discloses everything as above (see **claim 1**). In addition, Birkner '698 discloses the workstations in housing with a basal area (Fig. 9). However, he does not state that the housing is arranged such that the basal area is no longer than a basal area of the apparatus for thin-layer apparatus that contains only a measurement unit for thin-layer micrometrology. However, Birkner '999 teaches having a basal area for three workstations and only one is a microscopic inspection station (Fig. 1: 18). Therefore, it would be obvious to one

of ordinary skill in the art at the time the invention was made to have the basal area be no larger than a basal area for an apparatus for thin-layer metrology that contains only a measurement unit for thin-layer micrometrology to have a more compact system.

As for **claim 7**, Birkner discloses everything as above (see **claim 1**). He is silent concerning a feeder. However, Birkner '999 discloses a feeder for transport between a cassette and workstation (Fig. 1: 1). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have a feeder in order to feed the substrate from the cassette to the workstation for inspection.

8. **Claim 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Birkner et al. (2002/0051698)** in view of **Birkner et al. (2002/0095999)** further in view of **Kato et al. (6,241,456)**.

As for **claim 8**, Birkner '698 in view of Birkner '999 discloses everything as above (see claim 7). In addition, in view of Birkner '999 the substrates are pullable with the feeder out of the cassette element for delivery into the measurement unit (Fig. 1: 1). And Birkner '698 discloses automated inspection (paragraph 0005). They are silent concerning the substrates being guidable along beneath the measurement unit for macrometrology. However, Kato in a wafer inspecting apparatus teaches the wafers transported under the inspection stations (Fig. 1: 2 and 8). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have the substrate guidable beneath the macroinspection in order to properly inspect the wafer surface for defects.

9. **Claims 10-13, 15, 16, 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Birkner et al. (2002/0051698)** in view of applicant's disclosure of prior art.

As for **claim 10**, Birkner discloses transferring semiconductor substrates (paragraphs 0002-0003) out of at least one cassette (Fig. 7: 1a, 1c, 2a-2d) to a measurement unit of thin-layer micrometrology (Fig. 7: 3) being guided along past a measurement unit for thin-layer macrometrology (paragraph 0005; Fig. 7: two workstations, 3); determining locations for inspection automatically (paragraph 0005, lines 20-22) with a computer (Fig. 7: 6); wherein, two workstations may be micro and macroinspect (paragraph 0005). Birkner is silent concerning having the macroinspection workstation determining locations for micrometrology instrument to inspect and having the micrometrology performing measurements there. However, applicant's disclosure of prior art teaches that the macroinspection station determines where the microinspection should inspect the wafer (page 2, lines 20-25). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have the macroinspection system determine positions of defects in order for the microinspection system to thoroughly inspect the defective areas.

As for **claim 11**, Birkner in view of applicant's disclosure of prior art discloses everything as above (see **claim 10**). In addition, Birkner discloses automated locations for measurements transferal (paragraph 0005, lines 20-22). In view of applicant's disclosure of prior art the macrometrology system inspects the surface and defects found are preselected locations for the micrometrology systems (page 2, lines 20-25).

As for **claim 12**, Birkner in view of applicant's disclosure of prior art discloses everything as above (see **claim 10**). In addition, Birkner discloses multiple substrates may be inspected simultaneously (Fig. 7: two workstations, 3 and four cassettes of substrates, 2a-2d).

As for **claim 13**, Birkner in view of applicant's disclosure of prior art discloses everything as above (see **claim 10**). In addition, in view of applicant's disclosure of prior art the macrometrology system determines locations for measurement by the micrometrology system with measured values, thresholds defined as types of defects, as a decision as to whether microscopic points are to be measured by the micrometrology system (page 2, lines 20-25).

As for **claim 15**, Birkner in view of applicant's disclosure of prior art discloses everything as above (see **claim 10**). In addition, he discloses a microphotometer, microscope with electronic camera (paragraph 0005).

As for **claim 16**, Birkner in view of applicant's disclosure of prior art discloses everything as above (see **claim 10**). In addition, he discloses a macrophotometer, an electronic camera (paragraph 0005).

As for **claim 18**, Birkner in view of applicant's disclosure of prior art discloses everything as above (see **claim 10**). They do not specifically state using a coordinate transformation. However, applicant's disclosure of prior art teaches that defects by macroinspection are used for microinspection (page 2, lines 24-25) and Birkner discloses automation of locations for inspection (paragraph 0005, lines 20-22). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have coordinate transformation of the defects found in macroinspection in order to determine the locations in the micrometrology system's coordinate system for inspection.

10. **Claim 17** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Birkner et al. (2002/0051698)** in view of applicant's disclosure of prior art further in view of **Birkner et al. (2002/0095999)**.

As for **claim 17**, Birkner in view of applicant's disclosure of prior art discloses everything as above (see **claim 10**). In addition, Birkner discloses a transport mechanism (Fig. 7: 1a and 1c). He is silent concerning a feeder. However, Birkner '999 discloses a feeder for transport between a cassette and workstation (Fig. 1: 1). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have a feeder in order to feed the substrate from the cassette to the workstation for inspection.

#### *Allowable Subject Matter*

11. **Claims 4 and 14** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to **claims 4 and 14**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an apparatus/method for thin-layer metrology the measurement unit for thin-layer micrometrology encompasses a microphotometer and a microellipsometer in combination with the rest of the limitations of **claims 4 and 14**.

#### *Conclusion*

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: U.S. Patent 4,917,556 to Stark et al.

#### *Fax/Telephone Numbers*

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and



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2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

*Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (571) 273-8300*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (571) 272-2431.

The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached at 571-272-2800 ext 77.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private Pair system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



gs  
June 12, 2006



Layla Lauchman  
Primary Examiner  
Art Unit 2877